

Release notes for ENDF/B Development n-099_Es_253
evaluation



April 26, 2017

- psyche Warnings:

1. Strength function in URR not in agreement with PSYCHE's expectations
 $FILE\ 2 / SECTION\ 151 / ISOTOPE\ MASS = 253.\ L = 0 / STRENGTH\ FUNCTION$
 $IS\ 4.37005E-04 / STRENGTH\ FUNCTION\ 4.37005E-04 / LIES\ OUTSIDE\ LIMITS$
 $4.00000E-05\ TO\ 2.00000E-04\ (0):\ URR\ str.\ ftn.$

```
FILE 2
SECTION 151
ISOTOPE MASS = 253. L = 0
STRENGTH FUNCTION IS 4.37005E-04
STRENGTH FUNCTION 4.37005E-04
... [1 more lines]
```

- recent Warnings:

1. Statistical weight of certain L values were incorrect
 $0:\ RRR\ goof\ (a)$

```
Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
=====
Retrieval Criteria----- MAT
File 2 Minimum Cross Section- 1.0000E-10 (Standard Option)
Reactions with No Background- Output (Resonance Contribution)
... [136 more lines]
```

- fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
 $resonances / resolved$ (*Error # 1*): *missingResonanceChannel*

WARNING: Missing a channel with angular momenta combination $L = 0, J = 2.0$ and $S = 2.0$ for "capture"
 WARNING: Missing a channel with angular momenta combination $L = 0, J = 3.0$ and $S = 3.0$ for "capture"

2. Potential scattering hasn't converted, you need more L's!
 $resonances / resolved$ (*Error # 2*): *potentialScatteringNotConverged*

WARNING: Potential scattering hasn't converged by $L=0$ at $E=1.0$ eV, $xs[0]/xs[0]=100.0\% > 0.1\%$

3. Cross section does not match sum of linked reaction cross sections
 $crossSectionSum$ label 0: *total* (*Error # 0*): *CS Sum*.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.38%

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
 $Section\ 1\ (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed']) + gamma [total fission] [nubar]): / Form 'eval':$ (*Error # 0*): *Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
 $Section\ 2\ (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed']) + gamma [total fission] [nubar]): / Form 'eval':$ (*Error # 0*): *Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (3.337121e-09) is too small

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 3 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 3 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 4 (n + Es253): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 4 (n + Es253): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission]): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission]): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 10 (n + (Es253_e1 -> Es253 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.923406e-09) is too small

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 11 (n + (Es253_e2 -> Es253 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (5.152234e-09) is too small

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 12 ($n + (Es253_e3 \rightarrow Es253 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (5.819780e-10) is too small

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 13 ($n + (Es253_e4 \rightarrow Es253 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (6.354524e-10) is too small

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 14 ($n + (Es253_e5 \rightarrow Es253 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.201338e-09) is too small

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 15 ($n + (Es253_c \rightarrow Es253 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 16 ($Es254 + \gamma$): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

19. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 16 ($Es254 + \gamma$): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

20. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 17 ($n + Es253$ [angular distribution]): / Form 'eval': (Error # 1): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

21. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 18 ($n[multiplicity: 'energyDependent', emissionMode: 'prompt'] + n[emissionMode: '1 delayed'] + \gamma [total fission] [spectrum]$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

22. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 19 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

23. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 20 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

24. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 21 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

- **fudge-4.0 Errors:**

1. Duplicate Eout in outgoing distribution
Reading ENDF file: ../n-099_Es_253.endf (Error # 0): Bad Eout

```
WARNING: skipping duplicate e_out = 5093040.0, ii = 74 6 10.0
WARNING: skipping duplicate e_out = 5093050.0, ii = 74 7 20.0
WARNING: skipping duplicate e_out = 5093060.0, ii = 74 8 30.0
WARNING: skipping duplicate e_out = 5093080.0, ii = 74 9 50.0
... plus 2 more instances of this message
```

2. The spin statistical weights are off, indicating missing channels
resonances / resolved / MultiLevel.BreitWigner (Error # 0): badSpinStatisticalWeights

```
WARNING: The spin statical weights for L=0 sums to 0.5625, but should sum to 1.0. You have too few channels for
```

3. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c ->Es253 + gamma) / Product: Es253_c / Decay product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (250000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)
```

4. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c ->Es253 + gamma) / Product: Es253_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (250000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (182023.0 -> 20000000.0) vs (104036.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)
WARNING: Domain doesn't match the cross section domain: (250000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)
... plus 1 more instances of this message
```

5. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c -> Es253 + gamma) / Product: Es253_c / Decay product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (182023.0 -> 20000000.0) vs (104036.0 -> 20000000.0)

6. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c -> Es253 + gamma) / Product: Es253_c / Decay product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)

7. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c -> Es253 + gamma) / Product: Es253_c / Decay product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (250000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)

8. Energy range of data set does not match cross section range
reaction label 6: n + (Es253_c -> Es253 + gamma) / Product: Es253_c / Decay product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (104036.0 -> 20000000.0)

9. Calculated and tabulated Q values disagree.
reaction label 7: n[multiplicity:'2'] + Es252 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -6074043.999420166 eV vs -6351610. eV!

10. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)

11. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)

12. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)

13. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)

14. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
15. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
16. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
17. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
18. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
19. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
20. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_f / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
21. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
22. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_g / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)

23. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
24. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_h / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
25. Energy range of data set does not match cross section range
reaction label 7: n[multiplicity:'2'] + Es252 + gamma / Product: gamma_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (6376920.0 -> 20000000.0)
26. Calculated and tabulated Q values disagree.
reaction label 8: n[multiplicity:'3'] + Es251 + gamma (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: -11363575.55175781 eV vs -1.16411e7 eV!
27. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)
28. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)
29. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)
30. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)
31. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

32. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

33. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

34. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

35. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

36. Energy range of data set does not match cross section range
reaction label 8: n[multiplicity:'3'] + Es251 + gamma / Product: gamma_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (12500000.0 -> 20000000.0) vs (11687500.0 -> 20000000.0)

37. Calculated and tabulated Q values disagree.
reaction label 9: n[multiplicity:'4'] + Es250 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -18149298.92419434 eV vs -1.84272e7 eV!

38. Calculated and tabulated Q values disagree.
reaction label 11: Es254 + gamma (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 5370592.250091553 eV vs 5093030. eV!

39. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 8: n + (Es253_c -> Es253 + gamma) total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 24.82%

40. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 9: n[multiplicity:'2'] + Es252 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch

WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 87.07%

41. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 10: n[multiplicity:'3'] + Es251 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch

```
WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 76.43%
```

42. Calculated and tabulated Q values disagree.
fissionComponent label 0: /reactionSuite/fissionComponents/fissionComponent[@label='0']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.185e8 eV!
```

43. Calculated and tabulated Q values disagree.
fissionComponent label 1: /reactionSuite/fissionComponents/fissionComponent[@label='1']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.185e8 eV!
```

44. Calculated and tabulated Q values disagree.
fissionComponent label 2: /reactionSuite/fissionComponents/fissionComponent[@label='2']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.185e8 eV!
```

45. Calculated and tabulated Q values disagree.
fissionComponent label 3: /reactionSuite/fissionComponents/fissionComponent[@label='3']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.185e8 eV!
```

46. A covariance matrix was not positive semi-definite, so it has negative eigenvalues.
Section 17 (n + Es253 [angular distribution]): / Form 'eval': / LegendreLValue L=1 vs 1
(Error # 0): Bad evs

```
WARNING: 10 negative eigenvalues! Worst case = -5.344150e-05
```

- njoy2012 Warnings:

1. Evaluation has no unresolved resonance parameters given
unresr...calculation of unresolved resonance cross sections (0): No URR

```
---message from unresr---mat 9913 has no unresolved parameters
copy as is to nout
```

2. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.
heatr...prompt kerma (0): HEATR/hinit (3)

```
---message from hinit---mt19 has no spectrum
mt18 spectrum will be used.
```

3. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.
heatr...prompt kerma (1): HEATR/hinit (3)

```
---message from hinit---mt458 is missing for this mat
```

4. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (2): HEATR/hinit (4)

```
---message from hinit---mf6, mt 16 does not give recoil za= 99252
one-particle recoil approx. used.
```

5. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (3): HEATR/hinit (4)

```
---message from hinit---mf6, mt 17 does not give recoil za= 99251
one-particle recoil approx. used.
```

6. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (4): HEATR/hinit (4)

```
---message from hinit---mf6, mt 37 does not give recoil za= 99250
one-particle recoil approx. used.
```

7. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (5): HEATR/hinit (4)

```
---message from hinit---mf6, mt 51 does not give recoil za= 99253
one-particle recoil approx. used.
```

8. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (6): HEATR/hinit (4)

```
---message from hinit---mf6, mt 52 does not give recoil za= 99253
one-particle recoil approx. used.
```

9. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (7): HEATR/hinit (4)

```
---message from hinit---mf6, mt 53 does not give recoil za= 99253
one-particle recoil approx. used.
```

10. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (8): HEATR/hinit (4)

```
---message from hinit---mf6, mt 54 does not give recoil za= 99253
one-particle recoil approx. used.
```

11. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (9): HEATR/hinit (4)

```
---message from hinit---mf6, mt 55 does not give recoil za= 99253
one-particle recoil approx. used.
```

12. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (10): HEATR/hinit (4)

```
---message from hinit---mf6, mt 91 does not give recoil za= 99253
one-particle recoil approx. used.
```

13. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (11): HEATR/hinit (4)

```
---message from hinit---mf6, mt102 does not give recoil za= 99254
      photon momentum recoil used.
```

14. Evaluation has no unresolved resonance parameters given
purr...probabalistic unresolved calculation (0): No URR

```
---message from purr---mat 9913 has no unresolved parameters
      copy as is to nout
```

15. The number of coefficients is too big.
covr...process covariance data (1): COVR/matshd (3)

```
---message from matshd--- 64 coefficients > 2
      reset and continue
```

- **xsectplotter Errors:**

1. Duplicate Eout in outgoing distribution
(Error # 2): Bad Eout

```
WARNING: skipping duplicate e_out = 5093040.0, i1 = 74 6 10.0
WARNING: skipping duplicate e_out = 5093050.0, i1 = 74 7 20.0
WARNING: skipping duplicate e_out = 5093060.0, i1 = 74 8 30.0
WARNING: skipping duplicate e_out = 5093080.0, i1 = 74 9 50.0
... plus 2 more instances of this message
```